

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE THE APPLICATION OF)	Examiner: Zemel, Irina Sopjia
Jorge Sanchez, Ferdinand Polido)	
)	Group Art Unit No. 1711
SERIAL NO.: 10/721,617)	
)	Customer No.: 23644
FILED: November 25, 2005)	
)	Confirmation No.: 7713
FOR: Modeling Compound and Method of)	
Making a Modeling Compound)	

SECOND AMENDED APPEAL BRIEF

Honorable Director of Patents and Trademarks
P.O. Box 1450
Alexandria, VA 22313-1450

This Second Amended Appeal Brief is being filed in view of the Notice of Non-Compliant Appeal Brief mailed April 25, 2007 which raised new items of non-compliance. This Amended Appeal Brief is therefore being timely filed.

The First Amended Appeal Brief was filed on February 19, 2007 in view of a Notice of Non-Compliant Appeal Brief mailed January 30, 2007. The Original Appeal Brief was filed on December 19, 2006 in view of the Examiner's Final Office Action dated May 19, 2006, finally rejecting claims 1,3, 5-7, 7-16, 18-20, 22-39 of this application. The Notice of Appeal was filed on October 17, 2006. The required fee of \$250.00 pursuant to 37 C.F.R. §41.20 was submitted with the Original Appeal Brief filed December 19, 2006.

[X] AUTHORIZATION TO PAY AND PETITION FOR THE ACCEPTANCE OF ANY NECESSARY FEES. If any charges or fees must be paid in connection with the following Communication (including but not limited to the payment of Issue Fees), they may be paid out of our deposit account 12-0913. If this payment also requires a Petition, please construe this authorization to pay as the necessary Petition which is required to accompany this payment.

(i) Real Party in Interest

The real party in interest is the Polyform Products Company

(ii) Related Appeals and Interferences

There are no known related interferences or Appeals which may be related to, directly affect or be directly affected by or have a bearing on the decision in the present application.

(iii) Status of Claims

This application was filed with thirty claims and during prosecution claims 2, 6, 17, and 21 were canceled. Also during prosecution, claims 31-39 were added new and claims 1, 5, 9, 14, 15, and 20 were amended. Claims 1, 3-5, 7-16, 18-20, 22-39 are rejected. It is the rejection of claims 1, 3-5, 7-16, 18-20, 22-39 that is appealed, and the appealed claims are set forth in the Claims Appendix.

(iv) Status of Amendments

An attempt to make an amendment to the claims in a Response to Final Office Action filed July 19, 2006 was not entered. (See Advisory Action dated July 31, 2006). Accordingly, Claims 1, 3-5, 7-16, 18-20, 22-39 as presented in the March 16, 2006 Response and Amendment to Office Action are the claims being appealed, and those claims are set forth in the attached Claims Appendix.

(v) Summary of Claimed Subject Matter

There are three independent claims currently pending in this application; 1, 9, and 20.

Claim 1: A modeling compound comprising (See page 3, line 31), in combination,

polyvinyl chloride resin (See page 4, line 26);

primary plasticizer; (See page 4, line 26)

epoxidized soybean oil secondary plasticizer; (See page 4, line 26-27; page 5, line 31;
page 6, line 12)

a heat stabilizer comprising zinc; (See page 6, line 10-13)

dry expanded microspheres; (See page 6, line 17-18)

glass microspheres; (See page 6, line 20) and

rheology modifier (See page 6, line 27) , wherein the modeling compound comprises .3%
or less of water. (See page 4, line 29)

Claim 9 (currently amended) A modeling compound (See page 3, line 31), comprising in
combination,

40% - 60% polyvinyl chloride by weight of the compound (See page 4, line 34; page 5, line
14-15);

20% - 25% primary plasticizer by weight of the compound (See page 4, line 34-35);

1% - 3% epoxidized soybean oil by weight of the compound; (See page 4, line 35; page 5,
line 31; page 6, line 12)

1% - 2% zinc stabilizer by weight of the compound; (See page 4, line 35; page 6, line 10-
13)

15% - 25% dry expanded microspheres and glass microspheres by weight of the compound

(See page 4, line 35; page 6, line 17-20); and

1% - 3% thixotropic agent by weight of the compound (See page 5, line 5), wherein the modeling compound comprises 0.3% or less of water. (See page 4, line 29)

Claim 20 (currently amended) A process for forming a modeling compound (See page 3, line 31), comprising,

mixing a polyvinyl chloride resin (See page 4, line 26; page 6, line 33), a primary plasticizer (See page 6, line 23-24; page 6, line 33), a secondary plasticizer (See page 5, line 31; page 6, line 34) and a stabilizer (See page 5, line 35; page 6, line 34) to a smooth liquid consistency to create a mixture (See page 7, line 7);

adding rheology modifier (See page 7, line 14); and thereafter adding and mixing microspheres to said mixture. (See page 7, lines 8-15)

(vi) Grounds of Rejection to be Reviewed on Appeal

There are nine grounds of rejection to be reviewed on Appeal:

1. The rejection of claims 1, 3-5, 7-16, 18-19, 31-37, 39 under 35 U.S.C. §112 first paragraph as failing to comply with the written description requirement by reciting ‘epoxidized soybean oil’ as a claim element in claims 1, 9, and 14.
2. The rejection of claims 20, 22-30, and 38 under 35 U.S.C. §112 first paragraph as failing to comply with the written description requirement by reciting “adding rheology modifiers; and, thereafter adding and mixing microspheres to said mixture” as a claim element in claim 20.

3. The rejection of claims 31 and 39 under 35 U.S.C. §112 first paragraph as failing to comply with the written description requirement by reciting “acetyltributyl citrate” as a claim element.
4. The rejection of claims 1, 3-5, 7-16, 18-19, 31, 33, 35-37, 39 as being unpatentable under 35 U.S.C. 103(a) as obvious over US Patent 5,658,969 to Gerace et al. (hereinafter “Gerace”) in combination with either US Patent 3,627,707 to Giessler et al. (hereinafter “Giessler”) or US Patent 3,917,550 to Clas et al. (hereinafter “Clas”)
5. The rejection of claims 20, 22-30 as being unpatentable under 35 U.S.C. 103(a) as obvious by providing an order of mixing ingredients.
6. The rejection of claims 32, 34, and 38 as being unpatentable under 35 U.S.C. 103(a) as obvious over Gerace in combination with either Giessler or Clas, and further in combination with US Patent 4,797,314 to Davey et al. (hereinafter “Davey”).
7. The rejection of claims 1, 3, 6-8, 20, 22, 25, 27-30 as being unpatentable under 35 U.S.C. 103(a) as obvious over SU 907036 (hereinafter “SU ‘036”) in combination with either US Patent 5,607,993 to Christy (hereinafter “Christy”) or US Patent 5,506,280 to Miller et al. (hereinafter “Miller”), and further in combination with Giessler.
8. The rejection of claim 31 as being unpatentable under 35 U.S.C. 103(a) as obvious over SU ‘036 in combination with either Christy or Miller, Giessler and further in combination with “Preliminary Risk Characterization for Acetyl Tributyl Citrate Used as a Plasticizer in Polyvinyl Chloride Children’s Toys.”
9. The rejection of claim 32 as being unpatentable under 35 U.S.C. 103(a) as obvious over SU ‘036 in combination with Christy or Miller, Giessler and further in combination with Davey.

These rejections were set forth in the Examiner's Final Office Action of May 19, 2006.

(vii) Argument

Claims 3-5, 7-8, and 31-34 depend directly or indirectly on claim 1. Claims 10-16, 18-19, 35-37, and 39 depend directly or indirectly on claim 9. Claims 22-30 and 38 depend directly or indirectly with claim 20.

Ground 1:

The examiner rejected claims 1, 3-5, and 7-16, 18-19, 31-37, 39 under 35 U.S.C. §112 first paragraph as failing to comply with the written description requirement by reciting "epoxidized soybean oil" as a claim element in claims 1, 9, and 14.

How close the description must come to comply with §112 must be left to case-by-case development and depends on the nature of the invention. *In re Wertheim*, 541 F.2d at 262, 191 USPQ at 96, and MPEP 2163. An applicant must show support in the original disclosure for new or amended claims. See MPEP § 714.02 and § 2163.06. Newly added claim limitations must be supported in the specification through express, implicit, or inherent disclosure. See MPEP 2163. New or amended claims which introduce elements or limitations which are not supported by the as-filed disclosure violate the written description requirement. See, e.g., *In re Lukach*, 442 F.2d 967, 169 USPQ 795 (CCPA 1971). To satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention. See, *Moba, B.V. v. Diamond Automation, Inc.*, 325 F.3d 1306, 1319, 66 USPQ2d 1429, 1438 (Fed. Cir. 2003); *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d at 1563, 19 USPQ2d at 1116. The review is conducted from the standpoint of one of skill in the art at the time the application was

filed (see, e.g., *Wang Labs. v. Toshiba Corp.*, 993 F.2d 858, 865, 26 USPQ2d 1767, 1774 (Fed. Cir. 1993)). Evidence to supplement a specification, which on its face appears deficient under 35 U.S.C. 112, must establish that the information, which must be read into the specification to make it complete, would have been known to those of ordinary skill in the art. *In re Howarth*, 654 F.2d 103, 210 USPQ 689 (CCPA 1981).

Support for epoxidized soybean oil being used as a heat stabilizer can be found on page 6, line 12 and one of ordinary skill in the art would have understood that epoxidized soybean oil could also be used as a secondary plasticizer. Epoxidized soybean oil has common and widespread industrial uses as both a plasticizer and heat stabilizer by the polymer industry. One skilled in the art would reasonably conclude that the inventor, by mentioning epoxidized soybean oil for use as a heat stabilizer, also contemplated its use as a secondary plasticizer. As the examiner admits: “[e]poxidized soybean oil is [a] notoriously known plasticizer.”

Ground 2:

The examiner rejected claims 20, 22-30, and 38 under 35 U.S.C. §112 first paragraph as failing to comply with the written description requirement by reciting “adding rheology modifiers; and, thereafter adding and mixing microspheres to said mixture” as a claim element in claim 20. Support for this claim element can be found on page 7, lines 8-15; Paragraph 32 (wherein “overmixing after the addition of microspheres must be avoided”). By indicating in the description that “overmixing after the addition of microspheres must be avoided”, it is inherently disclosed that microspheres should be added to the mixture after the other ingredients. One skilled in the art, having heard that overmixing was to be avoided, would reasonably conclude

that the inventor had possession of the need for the microspheres to be added and mixed after adding the rheology modifiers.

Ground 3:

The examiner rejected claims 31 and 39 under 35 U.S.C. §112 first paragraph as failing to comply with the written description requirement by reciting “acetyltributyl citrate” as a claim element. Support for this claim element can be found on page 5, lines 23-29 (primary plasticizer) along with evidence that “acetyltributyl citrate” would be known by one of ordinary skill in the art as a plasticizer. The document entitled "Preliminary Risk Characterization for Acetyl Tributyl Citrate Used as a Plasticizer in Polyvinyl Chloride Children's Toys" (February 1999), clearly identifies Acetyl Tributyl Citrate as being well known as a plasticizer at the time of filing the present application. The Examiner is additionally referred to the Bibliography of Reports section of the document (for example, Castle *et al.*, 1988, "Migration of the plasticizer acetyltributyl citrate from plastic film into foods during microwave cooking and other domestic use." J. Food. Prot. 51(12):916-919)).

Ground 4:

The examiner rejected claims 1, 3-5, 7-16, 18-19, 31, 33, 35-37, and 39 as being unpatentable under 35 U.S.C. 103(a) as obvious over US Patent 5,658,969 to Gerace et al. (hereinafter “Gerace”) in combination with either US Patent 3,627,707 to Giessler et al. (hereinafter “Giessler”) or US Patent 3,917,550 to Clas et al. (hereinafter “Clas”).

“In order to rely on a reference as a basis for a rejection of an appellant’s invention, the reference must either be in the field of appellant’s endeavor or, if not, then be reasonably pertinent to the particular problem with which the invention was concerned.” *In re Oetiker*, 977

F.2d 1443, 1446, 24 USPQ.2d. 1443, 1445 (Fed. Cir. 1992). "A patent composed of several elements is not proved obvious merely by demonstrating that each element is not proved obvious merely by demonstrating that each element was, independently known in the prior art." *KSR v. Teleflex*, No. 04-1350, p 14 (U.S. 2007). The application of a teaching, suggestion, or motivation (TSM Test) to combine elements remains a valid test so long as it is not rigidly applied. *Id.* at 15. Common sense must be applied. *Id.* at 16.

None of the presently cited 35 U.S.C. 103 references contain a suggestion to combine. "[C]ombining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability, the essence of hindsight." *In re Dembiczak*, 50 USPQ2d, 1614, 1617 (1999). Without any suggestion, common sense dictates that combination of these references is improper.

In addition, the use of Gerace is improper as it is directed to plastisol coatings and adhesives, not modeling compounds. The use of Giessler is also improper as it is directed to a plastisol gasket-forming composition, not modeling compounds. The use of Clas is improper as it is directed to plastisols in general, not specifically modeling compounds.

The rejection based on Gerace is also improper because it fails to teach or suggest all the claim limitations purported by the Examiner. Gerace does not contemplate epoxidized soybean oil, nor does Gerace contemplate modeling compounds having 0.3% or less of water. As the examiner admits, Gerace does not address water concentration.

Ground 5:

The examiner rejected claims 20, and 22-30 as being unpatentable under 35 U.S.C. 103(a) as obvious by simply providing an order of mixing ingredients. Selection of an order of mixing ingredients is *prima facie* obvious. *In re Gibson*, 39 F.2d 975, 5 USPQ 230 (CCPA 1930). However, the order recited in claim 20 provides more than just a random order. It is important to avoid overmixing of the microspheres. Applicant realized this need and developed a process for forming and an order of mixing the modeling compound to overcome this problem. The order of mixing presented in claim 20 is not just an arbitrary order, it has a purpose and is therefore not obvious.

Ground 6:

The examiner rejected claims 32, 34, and 38 as being unpatentable under 35 U.S.C. 103(a) as obvious over Gerace in combination with either Giessler or Clas, and further in combination with US Patent 4,797,314 to Davey et al. (hereinafter “Davey”). As discussed above, in Ground 4, the use of Gerace, Giessler, and Clas are all improper. The use of Davey is similarly improper as it is directed to a surface covering compound, not modeling compounds.

Ground 7:

The rejection of claims 1, 3, 6-8, 20, 22, 25, 27-30 as being unpatentable under 35 U.S.C. 103(a) as obvious over SU 907036 (hereinafter “SU ‘036”) in combination with either US Patent 5,607,993 to Christy (hereinafter “Christy”) or US Patent 5,506,280 to Miller et al. (hereinafter “Miller”), and further in combination with Giessler. As discussed above, in Ground 4, the use of Giessler is improper. The use of Christy is also improper, as it is directed to a bouncing putty, not a modeling compound.

In addition, SU '036 specifically teaches polyvinyl chloride in a weight percent of 67-75. There is absolutely no teaching of using polyvinyl chloride in a weight percent of 40-60 (as presently claimed). Furthermore, neither Christy nor Miller disclose polyvinyl chloride in the presently claimed weight percentages. Lastly, Miller teaches away from the present claims by stating "an even more preferred range of water content in compositions of the inventions is from about 43% to about 49% by weight" (see column 4, lines 56-58).

Ground 8:

The examiner rejected claim 31 as being unpatentable under 35 U.S.C. 103(a) as obvious over SU '036 in combination with either Christy or Miller, Giessler and further in combination with "Preliminary Risk Characterization for Acetyl Tributyl Citrate Used as a Plasticizer in Polyvinyl Chloride Children's Toys". In addition to the arguments made above with regard to improper combination, claim 31 will stand or fall with claim 1. No further arguments with respect to these claims are therefore provided.

Ground 9:

The examiner rejected claim 32 as being unpatentable under 35 U.S.C. 103(a) as obvious over SU '036 in combination with either Christy or Miller, Giessler and further in combination with Davey. In addition to the arguments made above with regard to improper combination, claim 32 will stand or fall with claim 1. No further arguments with respect to these claims are therefore provided.

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Attorney Docket No. 42872-103457

Second Amended Appeal Brief, Dated May 17, 2007; Original Brief filed Dec. 19, 2006

Reversal of the Examiner is therefore clearly in order and is solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Jeffrey A. Ruppel", is written over a solid horizontal line.

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Appendix A (Copy of Claims on Appeal)

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. A modeling compound comprising, in combination,
polyvinyl chloride resin;
primary plasticizer;
epoxidized soybean oil secondary plasticizer;
a heat stabilizer comprising zinc;
dry expanded microspheres;
glass microspheres; and
rheology modifier, wherein the modeling compound comprises .3% or less of water.
2. (canceled)
3. A modeling compound as in claim 1 where said primary plasticizer comprises a monomeric plasticizer.
4. A modeling compound as in claim 1 where said primary plasticizer comprises a polymeric plasticizer.
5. A modeling compound as in claim 1 where said zinc heat stabilizer complexes with HCL.
6. (canceled)
7. A modeling compound as in claim 1 where said rheology modifier comprises a thixotropic agent.
8. A modeling compound as in claim 1 further comprising a secondary plasticizer.

9. A modeling compound comprising, in combination, 40% - 60% polyvinyl chloride by weight of the compound;

20% - 25% primary plasticizer by weight of the compound;

1% - 3% epoxidized soybean oil by weight of the compound;

1% - 2% zinc stabilizer by weight of the compound;

15% - 25% dry expanded microspheres and glass microspheres by weight of the compound;

and

1% - 3% thixotropic agent by weight of the compound, wherein the modeling compound comprises 0.3% or less of water.
10. A modeling compound as in claim 9 where said polyvinyl chloride comprises 48.8% by weight of the compound.
11. A modeling compound as in claim 9 where said primary plasticizer comprises a monomeric plasticizer.
12. A modeling compound as in claim 9 where said primary plasticizer comprises a polymeric plasticizer.
13. A modeling compound as in claim 9 where said primary plasticizer comprises 20.7% by weight of the compound.
14. A modeling compound as in claim 9 where said epoxidized soybean oil comprises 1.2% by weight of the compound.
15. A modeling compound as in claim 9 where said zinc stabilizer complexes with HCL.
16. A modeling compound as in claim 9 where said zinc stabilizer comprises 1.2% by weight of the compound.

17. (canceled)

18. A modeling compound as in claim 9 where said microspheres comprise 26.4% by weight of the compound.

19. A modeling compound as in claim 9 where said thixotropic agent comprises 1.8% by weight of the compound.

20. A process for forming a modeling compound, comprising,
mixing a polyvinyl chloride resin, a primary plasticizer, a secondary plasticizer and a stabilizer to a smooth liquid consistency to create a mixture;
adding rheology modifier; and thereafter adding and mixing microspheres to said mixture.

21. (canceled)

22. A process for forming a modeling compound as in claim 20 where said primary plasticizer comprises a monomeric plasticizer.

23. A process for forming a modeling compound as in claim 20 where said primary plasticizer comprises a polymeric plasticizer.

24. A process for forming a modeling compound as in claim 20 where said stabilizer comprises metal ions which complex with HCL.

25. A process for forming a modeling compound as in claim 20 where said rheology modifier comprises a thixotropic agent.

26. A process for forming a modeling compound as in claim 21 where said polyvinyl chloride comprises 40% - 60% by weight of the compound.

27. A process for forming a modeling compound as in claim 20 where said primary plasticizer comprises 20% - 25% by weight of the compound.

28. A process for forming a modeling compound as in claim 20 where said secondary plasticizer comprises 1% - 3% by weight of the compound.
29. A process for forming a modeling compound as in claim 24 where said stabilizer comprises 1% - 2% by weight of the compound.
30. A process for forming a modeling compound as in claim 25 where said thixotropic agent comprises 1% - 3% by weight of the compound.
31. The modeling compound of claim 1, wherein the primary plasticizer is acetyltributyl citrate.
32. The modeling compound of claim 1, wherein the rheology buffer is an organophilic clay.
33. The modeling compound of claim 1, wherein the heat stabilizer comprising zinc is calcium zinc.
34. The modeling compound of claim 7, wherein the thixotropic agent is an organophilic clay.
35. The modeling compound of claim 9, wherein the zinc stabilizer is calcium zinc.
36. The modeling compound of claim 15, wherein the zinc stabilizer is calcium zinc.
37. The modeling compound of claim 16, wherein the zinc stabilizer is calcium zinc.
38. The modeling compound of claim 25, wherein the thixotropic agent is an organophilic clay.
39. The modeling compound of claim 9, wherein the primary plasticizer is acetyltributyl citrate.

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Evidence Appendix

None

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Related Proceedings Appendix

None